

## CLAIMS

What is claimed is:

1. A connector for attachment to a tubular conduit, having a generally tubular metallic body comprised of:

- a first end portion;
- a second end portion, adjoining said first end portion, having a smooth cylindrical outer surface adapted to be inserted into said conduit, said second end portion including a formed rounded rolled-over nose at the outer end thereof;
- a longitudinally directed internal passage extending through said tubular body for receiving fluid flow;
- a first annular groove formed in said second end portion;
- a second annular groove, axially spaced from said first annular groove, also formed in said second end portion;
- said second end portion including a decreasing outside diameter portion extending slopingly from said second annular groove to the outer end thereof;
- a first essentially constant diameter portion extending between said first annular groove and said second annular groove; and
- a second essentially constant diameter portion extending between said first annular groove and said first end portion.

2. The connector as in claim 1 wherein said first and second annular grooves are roll formed via a radial impingement process.

3. The connector as in claim 1 wherein each of said first and second annular grooves is adapted to receive an annular sealing/retention member which has a greater outside diameter than that of said tubular body second end, said sealing/retention member, being

4 adapted to sealingly engage the inner peripheral surface of said tubular conduit, and  
5 completely fill said annular grooves while in compression.

1 4. The connector as in claim 1 wherein said generally tubular body includes an  
2 annular peripheral retaining groove located at the junction of said first and second end  
3 portions, said retaining groove being formed in said junction and adapted for receiving an  
4 annular end portion of a generally cylindrical shell surrounding and radially spaced from  
5 the outer surface of said second end of said tubular body, said shell also having an open  
6 end for receiving an end of said conduit, with said shell annular end portion affixedly  
7 terminating within said retaining groove, said shell being adapted to be inwardly  
8 deformed, once said conduit end is received therein, such that a plurality of axially spaced  
9 radially inwardly-depending detents are formed therein for elastically deforming said  
10 conduit end.

1 5. The connector as in claim 4 wherein said plurality of axially spaced detents are  
2 comprised of a first detent radially positioned over said decreasing outside diameter  
3 portion, a second detent radially positioned between said first and said second groove and  
4 a third detent radially positioned between said first annular groove and said retaining  
5 groove.

1 6. The connector as in claim 4 wherein said detents extend along the circumference  
2 of said shell.

1 7. The connector as in claim 1 wherein said generally tubular body is fabricated from  
2 a 5000 series aluminum alloy.

1 8. A connector for attachment to an elastic tubular conduit, having a generally  
2 tubular metallic body comprised of:  
3 a first portion,

4           a second portion integral with said first portion and having a smooth  
5           cylindrical outer surface adapted to be inserted into said conduit,

6           a longitudinally directed passage extending longitudinally through said  
7           first and said second portions for receiving fluid flow therethrough,

8           at least one annular, outwardly-directed groove formed in said second  
9           portion; and

10          an essentially constant diameter portion in said second portion adjoining at  
11          least one side of said at least one annular groove.

1       9.     The connector as in claim 8 wherein said second portion includes an outer end  
2       portion having a formed, rounded nose.

1       10.    The connector as in claim 9 wherein said second portion includes a uniformly  
2       decreasing outside diameter portion extending from the most proximate one of said at  
3       least one annular groove to said outer end-portion.

1       11.    The connector as in claim 8 wherein said at least one annular groove is produced  
2       via roll-forming process.

1       12.    The connector as in claim 8 wherein said at least one annular groove is a rounded  
2       groove and adapted to receive a ring-dashed shaped sealing/retention member which has a  
3       greater outer diameter than that of said tubular body second portion while located within  
4       said at least one annular groove and engages the inner peripheral surface of said tubular  
5       conduit when said conduit is subject to radial compression.

1       13.    The connector as in claim 12 wherein said sealing/retention member takes the  
2       form of an O-ring having a relaxed or uninstalled inner diameter less than the minimum  
3       diameter of the bottom surface of said at least one rounded annular groove.

1     14.     The connector as in claim 8 wherein said generally tubular body has an annular  
2     peripheral retaining groove formed between said first and second portions and is adapted  
3     for receiving a generally cylindrical shell surrounding and radially spaced from the outer  
4     surface of said second end of said tubular body, said shell having an open end for  
5     receiving said elastic tubular conduit and a closed annular end affixedly terminating  
6     within said retaining groove.

1     15.     The connector as in claim 8 wherein said generally tubular metallic body is  
2     fabricated from a 5000 series aluminum alloy.

1     16.     The connector as in claim 8 wherein said at least one annular outwardly-directed  
2     groove is curvilinear and includes side portions having a first curvilinear shape and a  
3     bottom portion having a curvilinear shape differing from that of said side portions, with  
4     the intersections of said side and bottom portions defining substantially similar  
5     longitudinally-spaced circular transition lines that function to aid in the retention of a  
6     sealing/retention member located within said at least one annular groove.